

# **Transportation Management Center Pooled Fund Study 2005 Annual Meeting – June 14<sup>th</sup> to 15<sup>th</sup>**

Rhode Island Department of Transportation  
Transportation Management Center  
Two Capitol Hill, Providence, Rhode Island 02903

## **Minutes**

### **Tuesday, June 14<sup>th</sup>**

#### **Introductions, Welcome, & Opening Remarks**

Raj Ghaman, FHWA, began the day by welcoming everyone to the TMC Pooled Fund Study (PFS) Annual Meeting. Ghaman introduced the new members of the TMC PFS and welcomed the first-time meeting participants. New members of the TMC PFS included Idaho Transportation Department, Kentucky Transportation Cabinet, and North Carolina DOT.

Cynthia Levesque, Rhode Island DOT, also welcomed the participants and briefly covered the logistics regarding the meeting facility.

Tom Granda, FHWA, welcomed the participants and noted that the success of the TMC PFS has been modeled for many other pooled fund studies.

Dave Kinnecom, Utah DOT, reviewed the agenda.

Jeff Benson, URS, reported on the lunch arrangement. He noted the arrangement for dinner would be discussed during the lunch break. Introductions related to travel reimbursement would be covered in the afternoon.

#### **Presentation – Results of Impacts of Dynamically Displaying Messages on CMS**

Connie Dudek, Texas Transportation Institute, gave a presentation on the status and results of the Impacts of Dynamically Displaying Messages on Changeable Message Signs project.

Discussion on the project included project objectives, deliverables, project progress, study approach, results and findings, and next steps. Dudek noted the draft research report has been submitted in May 2005. The final research report along with a white paper identifying recommended practices and potential changes to MUTCD were targeted to complete in Summer 2005.

Members inquired the design of the driver simulation study. Dudek noted the sign messages were up for 8 seconds for fixed time experiment. Signs were side mounted and were simulated to show 18” characters at freeway speeds.

Dudek further noted the possibilities for field tests. Two types of field tests were noted: real world field tests and proving ground tests. There are many variations with real world field tests

that may prevent from getting sound conclusions. Proving ground tests using test tracks may be more cost-effective and would be considered in the recommendations for future research.

Group inquired how the results of the study would impact current practice and could be used. Dudek indicated TTI performed a study for the New Jersey DOT regarding effective CMS message design for incidents and work zones. TTI also completed a CMS message design manual for the Texas DOT. Jessie Yung, FHWA, would collect the documents for distribution to members.

Members also questioned about the reason for selecting the top line for flashing. The bottom line of the message indicating “what to do” may be more important. It was also inquired if any study has been done regarding the placement of the sign, overhead vs. side mounted.

It was noted the flashing rate was with message on for 2 seconds followed by off for 1 second. Subjects were instructed to follow a lead vehicle during the driver simulation sessions. Vehicle and driver performance was measured by acceleration noise.

#### **Presentation – Preliminary Results of TMC Operations Manual Handbook**

Ed Seymour, Texas Transportation Institute, gave a presentation on the status of the TMC Operations Manual Handbook project. Discussion on the project included an overview of the project, intended audience, project progress, an overview of the handbook, and next steps. Draft chapters of the technical document were outlined. Seymour noted the initial draft handbook was available on the TMC PFS web site for review. The revised draft handbook would be submitted in a few weeks.

Group discussed the linkage between a concept of operations and an operations manual. It was suggested softening the statement on Slide #5 which had somewhat strong language regarding the relationship between the two.

Seymour indicated that there is no recommended schedule for updating/revising a concept of operations and an operations manual, but he would encourage agencies to do this when functions and systems are added or changed.

Greg Jones, FHWA, inquired the criteria for selecting case studies. Ghaman recommended selecting case studies from a mix of state, regional, and local agencies.

#### **Presentation – Preliminary Results of TMC Performance Monitoring, Evaluation and Reporting Handbook**

Brian Park, University of Virginia, gave a presentation on the status and preliminary results of the TMS Performance Monitoring, Evaluation and Reporting Handbook project. The presentation provided an overview of the project, objectives, intended audience, key issues and topics, schedule and key milestones, project progress, an overview of the handbook, highlights of the handbook chapters, and next steps.

Group discussed the slide regarding TMC/TMS types and functions. It was suggested including traveler information as a separate function/functional category. Park noted it might have been

included in the Information Sharing category but would double check. Group also noted planned and unplanned special events should be separated. It was also suggested adding archived data management as a category. Ghaman suggested highlighting selected categories as examples to describe the detailed functions associated with them.

Ming-Shiun Lee, URS, would send notices to all members on future project deliverables and request for review.

### **Presentation – Results of TMC Operator Requirements, Position Description and Software**

Dennis Folds, Georgia Tech Research Institute, gave a presentation on the status and results of the TMC Operator Requirements, Position Description and Software project. The presentation provided an overview of the project, schedule and key milestones, an overview of the software tool, and next steps. A brief background on Phase 1 of the project was also provided.

Folds noted FHWA would have the ownership of the on-line tool. However, who would eventually host the web-based tool needs to be discussed. The website currently does not have the capability of tracking people using the tool but could be implemented.

### **Status Report on Other Current Projects**

Lee gave a brief overview presentation on the status of other current projects. The presentation covered for each project the project purpose and objectives, intended audience, key issues and topics, project deliverables, and schedule and milestones. Lee noted a quarterly progress report was also included in the meeting material binder.

#### Coordinated Freeway and Surface Street Operational Plans and Procedures

- Draft technical document was submitted in December 2004.
- The contractor is currently performing technical editing and producing 508A compliant documents.
- Final technical document was targeted in December 2005.

#### TMC Business Planning and Plans Handbook

- Final draft handbook was submitted in April 2005.
- Final handbook and supporting outreach materials would be completed by the end of June.

#### Developing and Using Concept of Operations in Transportation Management Systems

- Final handbook was delivered in December 2004.
- Currently developing accessible version of the handbook as well primer and outreach materials.
- All final deliverables would be available in two months.

#### TMC Staffing and Scheduling for Day-to-Day Operations

- Project was initiated in February 2005.
- Draft annotated outline of the technical document was submitted in April.
- Final outline would be submitted in 2-3 weeks.
- Final technical document and spreadsheet tool would be available in January 2006.

#### TMC Clearinghouse Development and Initiation

- Project was initiated in May 2005.
- Currently collecting TMC related resources and developing prototype of clearinghouse.
- Prototype of the clearinghouse would be delivered in January 2006.
- Final clearinghouse website and associated database would be available in April 2006.

#### TMC Pilot Workshop Development and Delivery

- Currently in contract process.
- Anticipated project initiation in Fall 2005.
- TMC pilot workshop would be delivered in conjunction with next year's annual meeting.

#### Multi-state, Statewide, and Regional TMC Concept of Operations and Requirements

- Contract has been awarded to SAIC and Brian Smith of University of Virginia.
- Anticipated project initiation in Summer 2005.
- Project products would include a handbook, a project fact sheet, and a presentation on the subject.

#### Recovery and Redundancy of TMCs

- Currently in contract process.
- Anticipated project initiation in Summer or Fall 2005.
- Key products would include a handbook, a project fact sheet, and a presentation on the subject.

#### Procuring, Managing, and Evaluating the Performance of Contracted TMC Services

- Currently in contract process.
- Anticipated project initiation in Summer or Fall 2005.
- Key products would include a technical document, a primer, a project fact sheet, a tri-fold brochure, and a presentation on the subject.

#### Integration of TMCs and Law Enforcement

- In contract process.
- Anticipated project kick-off in Fall or Winter 2005.
- Key products include a technical document, a fact sheet, and a presentation

#### TMC Clearinghouse Support Services Phase 2

- Anticipated project initiation in Spring 2006, following the completion of the TMC Clearinghouse development.

#### **Succession of Co-Chair**

Nick Thompson, Minnesota DOT, has served as a co-chair for two years. According to co-chair terms defined in the TMC PFS Charter, a new co-chair should be identified to succeed Thompson's position. Manny Agah, Arizona DOT, was recommended to succeed Thompson as a Co-Chair of the TMC PFS. The recommendation was approved by consensus.

### **Discussion of Future Project Visions**

Ghaman noted the TMC PFS Newsletters have been distributed throughout FHWA and received positive feedback. He indicated the newsletter serves the following main purposes: outreach and awareness, stimulating other interests in joining the group, and information sharing. He inquired input and feedback from the members. It was suggested adding the following groups to the distribution list:

- TRB Freeway Operations Committee
- NTOC
- Transportation Communications Newsletter (Bernie Wagenblast)
- ITS Heartland

Ghaman stated in the past the TMC PFS focused mainly on traditional issues related to TMCs and freeway management systems. The majority of the products were handbooks. He suggested the group might consider broadening the horizon of types of projects and products to be produced for selection of new projects in 2007. He encouraged the group to think outside of the box and consider additional topics such as data archiving, integrated corridor management, communication (face-to-face as well as electronic), needs for motorist information (goes beyond using CMS), VII related topics, and activities to supplement USDOT ITS Program's Tier I initiatives.

Groups shared and discussed the following directions:

- Need to pursue a mix of projects for existing TMCs as well as supporting new TMCs
- Look beyond current needs and practices
- Consider rural issues
- Integrate planning and operations
- Strengthen issues related to the human side

### **Pooled Fund Study Funding Status**

Granda reviewed the funding status and discussed funding related issues. He noted commitment for 2006 has been received from several member agencies. He encouraged members whose agencies have not made commitment for 2006 to begin the process. In addition, Granda pointed out the recommended amount for consideration in selecting new projects for 2006.

### **Review and Discuss Potential New Projects**

Kinnecom reviewed the project selection schedule and process. Lee reviewed the results of the second round project prioritization exercise that was conducted in early May. As a result of the second round voting exercise, nine potential projects remained on the list for members' consideration and selection:

- Requirements and Position Description for TMC Support Staff
- Surface Street Operational Plans for Coordinated Management
- Planned Special Events Toolbox
- Developing and Disseminating Travel Time Information
- Driver Use of Real-Time Travel Time Information on Changeable Message Signs
- Displaying Travel Information at Approaches to Freeway Entrances

- Best Practices for Road Condition Reporting Systems
- Methodologies to Measure and Quantify TMC Benefits
- Techniques for Managing Service Patrol Operations

Lee reviewed the above nine project proposals. The following are issues that were identified by the members to be considered for inclusion in the projects if they are considered further:

Requirements and Position Description for TMC Support Staff (\$250,000)

- Each TMC is unique. May not be able to develop global requirements and position descriptions.

Surface Street Operational Plans for Coordinated Management (\$200,000)

- NCHRP has a similar project which offers strategies in response to incidents.
- Putting this project on hold in light of similar FHWA initiatives.

Planned Special Events Toolbox (\$150,000)

- Existing handbook is comprehensive. What could be added with a toolbox?
- A clearinghouse of tools for planned special events.
- An emerging area for FHWA funding and program.

Developing and Disseminating Travel Time Information (\$175,000)

- Focus on technologies
- Identify best practice
- Data required
- What messages are appropriate
- Should not limit the focus on CMS only
- Need appropriate data to predict travel time. Can't do it without human factors studies.

Driver Use of Real-Time Travel Time Information on Changeable Message Signs (\$175,000)

- Focus on human factors side
- Not to limit on CMS but also consider other ways for information dissemination
- The key is driver's decision process
- How to determine changes in traffic patterns
- May request FHWA to fund the project
- How to display messages
- Surveys – people do not always do exactly what they say will do
- Display travel time vs. delay
- Drivers' tolerance in accuracy

Displaying Travel Information at Approaches to Freeway Entrances (\$250,000)

- Research on what information is needed (not only on travel time)
- Include traveler information on broader basis

Best Practices for Road Condition Reporting Systems (\$125,000)

Methodologies to Measure and Quantify TMC Benefits (\$250,000)

- Need to show benefits to justify the needs for 24/7 operations
- Reference to TTI signal report card, cost benefit information, and relevant ITE publications
- Roles and functions of TMCs
- How to interact with police, fire, etc.

Techniques for Managing Service Patrol Operations (\$150,000)

- Include funding mechanism

**Prioritize 2006 Projects to Initiate**

Following the discussion, members proceeded with voting and prioritizing the projects to pursue in 2006. Results of the project prioritization are summarized in the table below:

Project	Score	Rank
Methodologies to Measure and Quantify TMC Benefits	66	1
Driver Use of Real-Time Travel Time Information on Changeable Message Signs	65	2
Developing and Disseminating Travel Time Information	48	3
Techniques for Managing Service Patrol Operations	25	4
Best Practices for Road Condition Reporting Systems	17	5
Requirements and Position Description for TMC Support Staff	16	6
Displaying Travel Information at Approaches to Freeway Entrances	15	7
Surface Street Operational Plans for Coordinated Management	4	8
Planned Special Events Toolbox	0	9

The group reviewed the voting results. The three top-ranked projects were selected as the priorities to consider pursuing in 2006. They were:

- Methodologies to Measure and Quantify TMC Benefits
- Driver Use of Real-Time Travel Time Information on Changeable Message Signs (Human Factors Study)
- Developing and Disseminating Travel Time Information (Technology Study)

The group proceeded with discussion and development of the scopes of the three projects.

Methodologies to Measure and Quantify TMC Benefits

- Develop “how to” but not try to show accurate figures for costs and benefits.
- Include components and systems associated with TMCs
- Define operating costs. Agencies may have fundamental differences in defining operating costs
- Need better ways to specifically identify benefits to support funding justification
- Cover both accounting and traffic engineering perspectives

- May considered 2 phases with 1<sup>st</sup> phase developing a synthesis on costs and benefits

*Driver Use of Real-Time Travel Time Information on Changeable Message Signs (Human Factors Study)*

- Should not limit to CMS. Look at different ways to disseminate information.
- \$175,000 budget seemed too low
- Focus on en-route information to narrow the scope
- Travel time vs. delay. Unfamiliar drivers may prefer delay
- Define purpose and objectives
- Customer feedback on technologies and reactions on information accuracy
- Group proceeded with changing the project title to “Driver Use of Real-Time En-Route Travel Time Information”
- May want to pursue in phases

*Developing and Disseminating Travel Time Information (Technology Study)*

- Project performed concurrently with the human factors study (previous project)
- Change title to “Developing Travel Time Information.”
- Move “dissemination” aspects to previous project.
- Budget should be lower.
- Consider staffing requirements

**Review Day 2 Agenda/Adjourn for Day**

The meeting was adjourned for the day.

**Wednesday, June 15<sup>th</sup>**

**Prioritize 2006 Projects**

The group reviewed the voting results from Day 1. Top ranked three projects were selected for pursuing in 2006. It was decided the four projects ranked 4<sup>th</sup> to 7<sup>th</sup> in the first round voting advanced for further discussion. The “Surface Street Operational Plans for Coordinated Management” and “Planned Special Events Toolbox” projects were dropped. Prior to the second voting exercise, the group further discussed the four projects.

*Techniques for Managing Service Patrol Operations*

- Synthesize current practices
- Budget should be lower.

*Best Practices for Road Condition Reporting Systems*

*Requirements and Position Description for TMC Support Staff*

- Budget seems high

*Displaying Travel Information at Approaches to Freeway Entrances*

- Combine with the human factors related travel time project



- Combine the “how to” elements with technologies related travel time project
- Removing issues related to placement of signs
- Take relevant elements of this project and combine them with two other travel time related projects

It was suggested adding TMC Workshop Phase 2 for consideration in the second voting exercise. However, it was felt it would be necessary to complete the phase 1 then the group could assess the needs for phase 2.

The group decided combining the “Displaying Travel Information at Approaches to Freeway Entrances” project with two other travel time related projects and proceeded with voting exercise on the remaining three projects. Results of the second voting exercise are shown below:

<b>Project</b>	<b>Score</b>	<b>Rank</b>
Techniques for Managing Service Patrol Operations	91	1
Best Practices for Road Condition Reporting Systems	62	3
Requirements and Position Description for TMC Support Staff	91	1

Since two top-ranked projects received equal scores, an addition vote on the two projects was conducted to determine priority. Each member was given one vote to cast. Results of the vote are shown below:

<b>Project</b>	<b>Vote</b>
Techniques for Managing Service Patrol Operations	11
Requirements and Position Description for TMC Support Staff	10

The group proceeded with identification of project champions. Agah inquired the roles of project champions. It was discussed that champions would involve with review of project deliverables as well as facilitation of such reviews and following up with others on the review teams to promptly review deliverables. Granda noted URS would prompt champions as to reviews not been made by review team members and champions would follow up with e-mail or calls to reminder them to review.

The results of the project prioritization and identification of project champions are summarized below:

1. Methodologies to Measure and Quantify TMC Benefits – Dottie Shoup/Jim McGee, Nebraska DOR
2. Driver Use of Real-Time En-Route Travel Time Information – Gene Donaldson, Delaware DOT
3. Developing Travel Time Information – Jeff Galas, Illinois DOT
4. Requirements and Position Description for TMC Support Staff – Mark Demidovich, Georgia DOT
5. Techniques for Managing Service Patrol Operations – Mia Silver, Michigan DOT
6. Best Practices for Road Condition Reporting Systems – Manny Agah, Arizona DOT

Kinnecom reminded the participants to review the proposals of the above six projects and provide comments to Lee by June 24<sup>th</sup>. URS would revise scopes and estimated budget for the projects selected for further review. It was suggested phasing the Driver Use of Real-Time En-Route Travel Time Information project. The concern of the danger that second phase might not be funded was discussed. Further discussion would be made once the project proposals and estimated budget are revised.

### **Status Report and Feedback on FHWA Programs**

Ghaman reported on the status of current FHWA initiatives related to TMCs. He noted three different software packages that would soon be implemented in Houston and Los Angeles:

- **DYNASMART:** One of the prototypes for the real-time Traffic Estimation and Prediction System (TrEPS). DYNASMART will provide traffic estimation and predictive information based on real-time traffic data and will help traffic engineers at TMCs implement proactive traffic management strategies in real time. The prototype would be field tested in Houston, TX.
- **DynaMIT:** another prototype for the real-time TrEPS developed under the Dynamic Traffic Assignment (DTA) research project. The prototype would be field tested in Los Angeles, CA.
- **AIDAS:** a prototype software package developed by the Los Angeles DOT.

Ghaman also discussed the status of the Integrated Corridor Management initiative. This project has a budget of \$6 million for 6 years. FHWA would solicit locations for model deployment. Some of the focuses include freeway management, ramp metering control, and adaptive signal control and coordination.

The Adapted Control Software (ACS Lite) adjusts signal timing to accommodate changing traffic patterns. The first field test site was in Columbus, Ohio. Other test sites include Houston, Florida (location to be determined), and San Diego.

### **FHWA Program Plan, Road Maps & Feedback on FHWA Freeway Management Program**

Yung reported on the FHWA Office of Operations current program activities. Discussion included initiatives related to freeway management and traffic operations, managed lanes, and HOV lanes. Highlights of the discussion include:

- **NHI Training Courses:**
  - **HOV System Training:** currently available and an update of the course would be available in 2006.
  - **Planned Special Events Traffic Management:** A pilot training was conducted in Portland last week. The course would be available for scheduling by the end of 2005.
- **Office of Operations** would consolidate information into a CD-ROM that would likely be available in early Fall.
- **Freeway Management and Operations Handbook** is currently available. The handbook would be updated when the **Ramp Management and Control Handbook** is completed. Draft version of the **Ramp Management and Control Handbook** is available for review

and could be accessed via the TMC Pooled Fund Study website under “Other National Operations Related Projects.”

- Planned Special Events Conference Proceedings are now available. Yung would forward the proceedings to Lee for posting and distribution.
- Lee provided a report on the HOV Pooled Fund Study Annual Meeting held in May 2005. Current study activities of the HOV PFS and new projects selected to pursue in 2006 were highlighted.
- Managed Lanes Initiative: currently developing statement of work for the Managing Lane Toolbox.
- Freeway Management Program Survey: the survey is in draft form but would like members to review and provide suggestions.

Ghaman added an update of the Traffic Control Systems Handbook has recently been completed. Yung indicated the handbook would be included in the Traffic Control Toolbox CD.

Greg Jones, FHWA, noted he has worked with John Corbin on the incident management implementation plan. He indicated the plan might tie with the service patrol project that members selected for 2006. Mia Silver, Michigan DOT, asked Jones to share with the group the presentation John Corbin made at the ITS America related to a scanning tour.

### **Remaining TMC PFS Activities for 2005**

Members discussed potential locations for the annual meeting next year. Candidate locations included Los Angeles, Phoenix, Park City/Salt Lake City, Atlanta/Savannah, and Seattle. The group recommended Seattle as the location for the next annual meeting. Ghaman and Lee would work with Vinh Dang, Washington State DOT, for arrangements. The dates were tentatively set for the week of July 10<sup>th</sup>, 2006.

The group discussed the possibility of holding a TMC pilot workshop in conjunction with the annual meeting. It was recommended the annual meeting would be 1½ or 2 days starting on Tuesday, followed by a ½ day of workshop on Thursday.

### **Rhode Island DOT TMC Presentation**

Cynthia Levesque, Rhode Island DOT, provided a background of the Rhode Island DOT TMC in providence. Major system components of the TMC include CCTV, VMS, and communications infrastructure. The CCTV video images are shared with E911. The operation of the center is contracted. A demonstration of a TMC training program was also provided.

### **Presentation – Regional Transportation Management, Coordination and Cooperation**

Mia Silver, Michigan DOT, gave a presentation on the Michigan DOT MITS Center’s experience with regional operations. The presentation covered the core functions of the MITS Center, which are incident management, traffic information and freeway courtesy patrol dispatch. The MITS center is a 24/7 facility, co-located with the State Police Dispatch. The center is staffed with contracted personnel. The MITS Center was a recipient of 2005 FHWA grant for Regional Transportation Operations Collaboration and Coordination Demonstration Initiative.

## **Adjourn**

Kinnecom thanked participants for their participation and encouraged them to stay involved in projects. Meeting was then adjourned.

## **Transportation Management Center Pooled Fund Study 2005 Annual Meeting – June 14th and 15th Attendees**

<b><u>Name</u></b>	<b><u>Organization</u></b>
Manny Agah	Arizona Department of Transportation
Monica Kress	California Department of Transportation
Gene Donaldson	Delaware Department of Transportation
Raj Ghaman	Federal Highway Administration
Tom Granda	Federal Highway Administration
Jessie Yung	Federal Highway Administration
Greg Jones	Federal Highway Administration
Mark Wilson	Florida Department of Transportation
Mark Demidovich	Georgia Department of Transportation
Merrill Sharp	Idaho Transportation Department
Jeffrey Galas	Illinois Department of Transportation
Mike Floberg	Kansas Department of Transportation
Mia Silver	Michigan Department of Transportation
Nick Thompson	Minnesota Department of Transportation
Lisa Vieth	Missouri Department of Transportation
Jim McGee	Nebraska Department of Roads
John Bassett	New York State Department of Transportation
Doug Tomlinson	Pennsylvania Department of Transportation
Cynthia Levesque	Rhode Island Department of Transportation
Joe Schall	Rhode Island Department of Transportation
David Kinnecom	Utah Department of Transportation
Vinh Dang	Washington State Department of Transportation
Doug Dembowski	Wisconsin Department of Transportation
Conrad Dudek	Texas Transportation Institute
Ed Seymour	Texas Transportation Institute
Brian Park	University of Virginia
Dennis Folds	Georgia Tech Research Institute
Jeff Benson	URS Corporation
Ming-Shiun Lee	URS Corporation